Before the
**FEDERAL COMMUNICATIONS COMMISSION**
Washington, D.C. 20554

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| In the Matter of: | ) | |
| Spectrum Task Force Requests Information on Frequency Bands Identified by NTIA as Potential Broadband Spectrum | ) | ET Docket No. 10-123 |

**COMMENTS OF MOTOROLA SOLUTIONS, INC.**

Motorola Solutions, Inc. ("MSI") hereby responds to the Federal Communications Commission's ("Commission") Public Notice seeking comment on the steps the Commission should take to promote wireless broadband deployment in the 1695-1710 MHz and 3550-3650 MHz bands identified by the National Telecommunications and Information Administration ("NTIA") as potential candidates for commercial wireless broadband use.[1]

## I. INTRODUCTION

MSI applauds the Commission and NTIA on its collaboration to identify spectrum bands currently held by the federal government that could be made available for wireless broadband uses. As President Obama explained in the Presidential Memorandum instructing NTIA and the Commission to identify 500 MHz of federal and nonfederal spectrum over the next ten years suitable for mobile and fixed wireless broadband use, "[e]xpanded wireless broadband access will trigger the creation of innovative new businesses, provide cost-effective connections in rural areas, increase productivity,

[1] *See* Spectrum Task Force Requests Information on Frequency Bands Identified by NTIA as Potential Broadband Spectrum, ET Docket No. 10-123, *Public Notice*, DA 11-444 (rel. Mar. 8, 2011) ("*Public Notice*").

improve public safety, and allow for the development of mobile telemedicine, telework, distance learning, and other new applications that will transform Americans' lives."[2] MSI is committed to assisting the Commission and NTIA in fulfilling this mandate.

The identification of the 1695-1710 MHz and 3550-3650 MHz bands in NTIA's Fast Track Report[3] is an important first step. However, the report focused entirely on commercial mobile uses of spectrum, at the expense of serious consideration of the potential of these spectrum bands for non-commercial and fixed broadband uses. As the Commission and NTIA continue with their evaluation of these and other spectrum bands for potential reallocation, they should also be mindful of the continued need for additional broadband spectrum to support critical business and government functions for which dedicated spectrum may be the most appropriate solution to unleash the full benefits of next generation broadband technologies.[4] Moreover, the Commission and NTIA should examine the extent to which the suggested spectrum bands could be used to

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[2] Presidential Memorandum: Unleashing the Wireless Broadband Revolution, dated June 28, 2010, *available at* http://www.whitehouse.gov/the-press-office/presidential-memorandum-unleashing-wireless-broadband-revolution; *see also* Connecting America: The National Broadband Plan, Recommendation 5.8, p. 84 (2020) *available at* http://www.broadband.gov/plan/ (recommending that the FCC make 500 MHz of spectrum available for broadband use within the next 10 years).

[3] *See* An Assessment of the Near-Term Viability of Accommodating Wireless Broadband Systems in the 1675-1710 MHz, 1755-1780 MHz, 3500-3650 MHz, and 4200-4220 MHz, 4380-4400 MHz Bands, U.S. Department of Commerce, Oct. 2010 *available at* http://www.ntia.doc.gov/reports/2010/FastTrackEvaluation_11152010.pdf ("Fast Track Report").

[4] For example, in 2010, the DOE issued a Request for Information concerning smart grid. *See* Department of Energy Request for Information: Implementing the National Broadband Plan by Studying the Communications Requirements of Electric Utilities To Inform Federal Smart Grid Policy, 75 Fed. Reg. 26206, May 11, 2010. A number of the responses to this RFI noted that some smart grid applications require dedicated spectrum while others may fit well on a commercial system. For example, see Comments of the Utilities Telecom Council, July 12, 2010 and Comments of Motorola, Inc., July 12, 2010.

provide fixed broadband services in a manner that presents different or lesser interference concerns than the mobile use case.

## II. THE COMMISSION SHOULD MAKE A PORTION OF THE 3550-3650 MHZ BAND AVAILABLE FOR WIRELESS BROADBAND USES UNDER THE EXISTING "LICENSE-LITE" RULES.

MSI proposes that the Commission focus on the potential benefits of combining all or a portion of the 3550-3650 MHz band with the existing wireless broadband allocation at 3650-3700 MHz. The 3550-3650 MHz band spans portions of 3GPP bands number 41 and 42, and thus TDD LTE and other uses under flexible use rules have been contemplated for this band. However, the propagation characteristics of this relatively high frequency spectrum make the band less ideal for exclusively licensed mobile use than some lower frequency spectrum, particularly outside of densely populated urban environments. Moreover, according to NTIA's assumptions and calculations, the inability of conventional mobile deployments to resist interference from the incumbent federal ship-based radar users, and the interference risk posed to various federal fixed land and aeronautical sites by high power emissions from conventional commercial mobile base stations have necessitated the drawing of broad coastal and inland exclusion zones. These exclusions zones would include the vast majority of top twenty MSAs and would likely preclude a majority of the population of the United States from utilizing mobile services in this band. As such, the 3550-3650 MHz band may attract more limited interest for commercial mobile use under the currently contemplated conditions than would some of the other bands under consideration for repurposing. However, the band may hold some appeal to commercial operators for fixed or backhaul uses, and this band, or a portion of it, could be extremely useful for the delivery of commercial broadband services under an alternative licensing scheme.

In particular, the Commission and NTIA should recognize the potential of the 3550-3650 MHz band for use as an extension of the existing 3650-3700 MHz wireless broadband allocation, and MSI recommends that at least a portion of 3550-3650 MHz band be reallocated for fixed or mobile uses under the existing non-exclusive, nationwide licensing approach—often referred to as "license-lite"—that is employed in the 3650-3700 MHz band.[5] The Commission should take steps to make the 3600-3650 MHz portion of this band available for wireless broadband uses under the same rules that apply to the 3650-3700 MHz license-lite spectrum. The 3650-3700 MHz spectrum has already proven to be very popular for the provision of wireless broadband Internet access services, particularly in rural areas,[6] and the 3600-3650 MHz band could be quickly put to use with existing devices and infrastructure. Indeed, more than 20 manufacturers have already received Commission approval for equipment in the 3650-3675 MHz band that could operate in 3600-3650 MHz with little modification. MSI firmly believes that one of the primary factors preventing further deployment of wireless broadband services in this band is limited availability of spectrum.[7] Adding 50 MHz of additional spectrum in this band, where a vibrant device and infrastructure market already exists, would be one

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[5] *See* 47 C.F.R. §§ 90.1301-1337.

[6] Beyond just wireless Internet service providers, a search of the Commission's Universal Licensing System database reveals that there are over 1600 active licensees in the 3650-3700 MHz band, including municipal, public safety, critical infrastructure, and industry users.

[7] MSI also notes that there remains pending a Petition for Rulemaking filed by the Fixed Wireless Communications Coalition seeking sensible revisions to the licensed-lite regime to promote deployment through fostering successful cooperation between licensees. *See* Petition for Rulemaking of the Fixed Wireless Communications Coalition, RM-11604 (filed Apr. 15, 2011); *see also* Comments of Motorola, Inc., RM-11604 (filed Jul. 6, 2010) (supporting the Petition and suggesting additional modifications to the rules, including increased power limits and streamlined coordination with grandfathered fixed satellite service earth station licensees).

of the most efficient actions the Commission could take to promote broadband deployment, particularly in rural areas.

The large coastal exclusion zones currently identified by NTIA as necessary to protect broadband deployments from interference caused by high-power ship-based radar services would reduce the usefulness of any potential application. However there are reasons to believe that these interference concerns may be less severe in the use cases contemplated by MSI. For example, license-lite systems are designed to operate in an uncertain interference environment in a non-exclusively licensed band. Network operators in this band would be capable of engineering around the potential interference concerns posed by incumbent federal users without the need to adopt the receiver performance requirements contemplated by NTIA.[8] Furthermore, under the current rules, license-lite operations in the 3650-3700 MHz band operate at lower powers than those considered in the Fast Track Report.[9] This lower power may also reduce the need for and size of the inland exclusion zones NTIA suggested to protect fixed, aeronautical, and military sites. The Commission should ensure that the interference potential is calculated using appropriate technical characteristics for fixed WiMAX TDD operations under the rules for license-lite spectrum. An analysis based upon the transmitter and receiver characteristics of a 3650-3700 MHz system may conclude that the required coastal exclusion zones are smaller than anticipated in the Fast Track Report. MSI stands ready to work with the Commission and NTIA to complete such an analysis.

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8 *See* Fast Track Report at 4-78 (proposing that the Commission require the use of front-end filters with between 30 and 40 decibels of attenuation at 3500 MHz).

9 *Compare* 47 C.F.R. § 90.1321 (limiting base and fixed stations to 1 watt/1 MHz EIRP) *with* Fast Track Report at B-1 (considering WiMAX base station operations of 40 dBm over a 5 MHz channel, which is equivalent to 2 watts/1 MHz).

## III. CONCLUSION

As discussed above, the Fast Track Report and the Commission's *Notice* represent an important step toward President Obama's goal of making available 500 MHz of federal and nonfederal spectrum over the next ten years suitable for mobile and fixed wireless broadband use. In continuing to pursue this goal, the Commission must not forget about the pressing needs for broadband spectrum for uses besides commercial mobile services, including fixed applications. The 3550-3650 MHz band identified by NTIA in the Fast Track Report is a good candidate for fixed wireless broadband deployment, especially in rural areas. The Commission should take steps to make at least a portion of this spectrum available under the license-lite regime currently utilized in the 3650-3700 MHz band.

Respectfully submitted,

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